

School of Chemistry, Trinity Biomedical Sciences Institute, Trinity College Dublin, Dublin 2, Ireland

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Education and Appointments

2007-13 Research Assistant Professor, School of Chemistry, TCD

- Principal Investigator, Trinity Biomedical Sciences Institute
- Principal Investigator, Centre for Research on Adaptive Nanostructures and Nanodevices
- Visiting Lecturer, Okayama University, Japan (Host: Y. Takaguchi)

2006-07 Young Researcher, School of Pharmacy, University of Trieste, Italy (Advisor: M. Prato)

2005-06 Lecturer, School of Physics, TCD

2003-06 Marie Curie Research Fellow, School of Physics, TCD (Advisor: W. Blau)

- Visiting Scientist, University of Texas at Dallas, USA (Host: R. Baughman)

2004 Ph.D. Chemistry, University of Miami, USA (Advisor: F.M. Raymo)

2001 M.Sc. Organic Chemistry, University of Miami, USA

1999 Laurea Pharmaceutical Chemistry and Technology, Univ. of Milan, Italy (Advisor: D. Pocar)

Research Career

She has co-authored over **50 peer reviewed papers** in International journals, including *Nature Nanotechnology*, *PNAS*, *Advanced Materials*, *ACS Nano* and *J. Am. Chem. Soc.*, 5 conference proceedings, 1 encyclopedia chapter and 3 book chapters from 2001 to date. Her publications have received **~1,600 citations** and have been featured in *Science*, *Nature*, *Nature Materials*, *Nature Nanotechnology*, *New Scientist*, *Chemical and Engineering News*, *Materials Today*, *Photonic Spectra and Biophotonics International*. Six publications have been cited over 100 times, 11 over 50 and 28 over 10. She has a research **h-index of 19**. She has presented her work at numerous conferences and universities around the world e.g. in Japan, Brazil, Chile, Ethiopia, United States and across Europe. She has co-organized the *Molecular Day* at the Bergamo Science Festival and the *Supramolecular Chemistry Symposium* at TCD. Over the last five years she has supervised 4 PhD students (3 graduated), 9 postdoctoral fellows, 9 undergraduate students, 2 research assistants and 4 visiting researchers.

Research Area and Interests: Supramolecular Chemistry (design, synthesis and characterization of photoactive molecules for sensing and light-activated delivery and as building blocks of extended supramolecular systems), Nanoscience (functionalization and characterization of nanomaterials for imaging, sensing, drug delivery), Toxicity and immunomodulatory properties of nanomaterials

Invited seminars (last 5 years)

- Queen's University, School of Chemistry and Chemical Engineering, Belfast, UK, 14 Dec 2012
- Italian Institute of Technology, Center for Advanced Biomaterials, Naples, Italy, 5 June 2012
- University College Dublin, Nanomedicine Centre, 19 Jan. 2012
- University of Venice, Italy, 25 Nov. 2011
- Freie University, Berlin, Germany, 7 June 2011
- Methodist Hospital Research Institute, Houston (TX) USA, 19 April 2011
- University College Dublin, School of Chemistry, 6 April 2011
- University of Chieti, School of Pharmacy, Italy, 16 Dec. 2010
- University of Miami, School of Chemistry, Coral Gables (FL) USA, 30 March 2010
- University of Milan, School of Physics, Italy, 22 September 2009
- MANA, National Institute for Materials Science, Tsukuba, Japan, 3 August 2009
- University of Catania, School of Chemistry, Italy, 8 April 2009

- University of Cambridge, Centre for Advanced Photonics and Electronics, UK, 27 March 2009
- University College Cork, School of Physics, 19 Jan. 2009
- University of Limerick, School of Materials, 5 June 2008
- Trinity College Dublin, Institute of Molecular Medicine, 10 Mar 2008

Invited talks at Conferences (last 5 years)

- Destination Europe workshop, San Francisco, US, 6-7 December 2012
- Policy dialogue workshop, Addis Ababa, Ethiopia, 23-24 October 2012
- Intel Research Conference, Dublin, Ireland, 3 October 2012
- NanoNet Ireland, Trinity College Dublin, Ireland, 17 September 2012
- NanoteC12, University of Sussex, Brighton, UK, 30 August 2012
- Euroscience Open Forum 2012, Dublin, 12 July 2012
- ECOST Scientific Annual Meeting, Trieste, Italy, 11 Nov. 2011
- Marie Curie Researchers Symposium, Warsaw, Poland, 26 September 2011
- 43rd IUPAC World Chemistry Congress, San Juan, Puerto Rico, 2 August 2011
- ECOST “Vibrational Spectroscopy in Nanotechnology” workshop, Istanbul, Turkey, 26 June 2011
- Intel European Research & Innovation Conference, Leixlip, Ireland, 14 Oct. 2010
- Bergamo Science Festival, Bergamo, Italy, 1 Oct. 2010
- Molecular design and synthesis toward intelligent materials workshop, Okayama University, Japan, 25-26 July 2009
- Polymeric Materials Conference, Industrial Technology Center of Okayama Prefecture, Japan, 15 July 2009
- 10th Symposium on Supramolecular Chemistry in Ireland, TCD, Ireland, 9 July, 2009
- Fun Day Symposium for Jonathan Sessler, School of Chemistry, TCD, 14 May 2008

Grants (last 5 years)

Independent PI

	<u>Amount</u>	<u>Dates</u>
1. “Functionalizing Nanotubes with Molecular Switches for Smart and Sensitive Devices”, Science Foundation Ireland	€1,116,661	2007-13
2. “AFM/Raman Spectrometer” <i>Equipment Supplement Award</i> Science Foundation Ireland	€ 481,788	2007
3. “New avenue towards “smart” medicines” <i>L’Oréal UNESCO UK & Ireland Fellowship For Women in Science</i>	€ 18,000	2012-13
4. “Development of new methods for the scalable fabrication of Tip-Enhanced Raman Spectroscopy (TERS) probes” <i>Technology and Innovation Development Award Feasibility</i> Science Foundation Ireland	€ 43,730	2011-12
5. “Development of functional glass surfaces for heterogeneous catalysis in microreactors” <i>IRCSET EMPOWER Postdoctoral Fellowship</i>	€ 83,100	2009-11
6. “Smart Nanomaterials with Applications in Photodynamic therapy” <i>Marie Curie European Re-integration Grant</i> European Commission	€ 30,000	2009-11
7. “Photochromic network polymers and supramolecular modification of SWNTs” <i>IRCSET Postgraduate Scholarship</i>	€ 72,000	2008-11
8. “Tip Enhanced Raman Spectroscopy (TERS) for the characterization of nanoscale structures, a step towards developing a reliable correlation screening and fingerprinting” <i>IRCSET-Intel Postdoctoral Fellowship</i>	€ 80,000	2008-11
9. “Functionalisation of carbon nanotubes” <i>Intel</i>	€ 8,000	2010-11
10. “Functionalisation of carbon nanotubes and Raman spectroscopy of nanostructures” <i>IRCSET-Intel Postgraduate Scholarship</i>	€ 72,000	2007-10
11. "Biogenous Ceramics Project", <i>Travel Award</i> Okayama University, Japan	€ 3,400	2009

12. “Synthesis of New Functional Nanomaterials” <i>SFI UREKA Supplement Co-PI</i>	€ 6,400	2008
	<u>Amount</u>	<u>Dates</u>
13. “Immunomodulatory properties of nanoparticulates” <i>CRANN Pathfinder Project Science Foundation Ireland co-PI: Dr. Edward Lavelle</i>	€ 70,000	2011-12
14. “Designing novel materials for nanodevices: From Theory to Practise” <i>COST Domain Materials, Physical and Nanosciences PI: Dr. Carla Bittencourt</i>	€ 400,000	2009-13
15. “Summer Undergraduate Research Experience II” <i>UREKA site Science Foundation Ireland PI: Dr. Charles Patterson</i>	€ 313,500	2008-11

Selected Publications (*IF: impact factor; cit.: number of citations, from Web of Science*)

- Natali M. and Giordani S.* (2012) “Molecular switches as photocontrollable “smart” receptors” *Chem. Soc. Rev.* 41 (10), 4010 - 4029. (IF=28.76, cit 4)
- Del Canto E., Natali M., Movia D. and Giordani S.* (2012) “Photo-controlled Uptake and Release of Zinc Metal Ions by Spiropyran receptors anchored to Single-Walled Carbon Nanotubes” *Phys. Chem. Chem. Phys.* 14 (17), 6034 – 6043. (IF=3.57, cit 1)
- Flavin K., Lawrence K., Bartelmess J., Tasiar M., Navio C., Bittencourt C., O’Shea D., Guldi D.M. and Giordani S.* (2011) “Synthesis and characterization of novel boron azadipyrromethene single-walled carbon nanotube electron donor-acceptor conjugates” *ACS Nano* 5, 1198–1206 (IF=11.42, cit. 14)
- Del Canto E., Flavin K., Movia D., Navio C., Bittencourt C. and Giordani S.* (2011) “A Critical Investigation of Defect Site Functionalization on Single Walled Carbon Nanotubes” *Chem. Mater.* 23, 67-74 (IF=7.29, cit 7)
- Del Canto E., Flavin K., Natali M., Perova T. and Giordani S.* (2010) “Functionalization of Single Walled Carbon Nanotubes with Optically Switchable Spiroyrans” *Carbon* 48, 2815-2824 (IF=5.38; cit. 11)
- Flavin K., Chaur N., Echegoyen L. and Giordani S.* (2010) “Functionalisation of multilayer fullerenes (carbon nano-onions) using diazonium compounds and ‘Click chemistry’” *Org. Lett.* 12, 840- 843 (IF=5.4; cit. 10)
- Natali M., Soldi L. and Giordani S.* (2010) “A photoswitchable Zn(II) selective spiropyran-based sensor” *Tetrahedron* 66, 7612-7617 (IF=3.02; cit. 13)
- Movia D., Del Canto E. and Giordani S.* (2010) “Purified and Oxidized Single-Walled Carbon Nanotubes as robust near-IR fluorescent probes for molecular imaging” *J. Phys. Chem. C*, 114, 18407-18413 (IF=4.81; cit. 9)
- Singh P., Campidelli S., Giordani S., Bonifazi D., Bianco A. and Prato M. (2009) “Organic Functionalisation and Characterisation of Single-Walled Carbon Nanotubes” *Chem. Soc. Rev.* 38, 2214- 2230 (IF=28.76; cit. 113)
- Cellot G., Cilia E., Cipollone S., Rancic V., Sucapane A., Giordani S., Gambazzi L., Markram H., Grandolfo M., Scaini D., Gelain F., Casalis L., Prato M., Giugliano M. and Ballerini L. (2009) “Carbon nanotubes direct interactions with neuronal membranes ignite post spike excitability” *Nature Nanotechnology*, 4, 126-133 (IF=27.27; cit. 81) **Featured in Nature Nanotechnology**
- Bergin S. D., Nicolosi V., Streich P., Giordani S., Sun Z., Windle A. H., Ryan P., Niraj N.P.P, Wang Z.T., Carpenter L., Blau W. J., Boland J.J., Hamilton, J. P. and Coleman J. N. (2008) “Spontaneous exfoliation of single-walled carbon nanotubes” *Adv. Mater.* 20, 1876-1881 (IF=13.88; cit. 102) **Featured in Science and C&E News**
- Giordani S., Bergin S.D., Nicolosi V., Lebedkin S., Kappes M., Blau W. J. and Coleman J. N. (2006) “Debundling of single-wall nanotubes by dilution: observation of large populations of individual nanotubes in amide solvent dispersions” *J. Phys. Chem. B* 110, (32) 15708-15718 (IF=3.67; cit. 170)